Children with ADHD have differences in part of brain controlling movement

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(HealthDay)—Children with attention-deficit/hyperactivity disorder (ADHD) may have differences in the brain that limit appropriate responses to "stop cues," according to a study published online July 17 in *Neurology*.

Donald L. Gilbert, M.D., from the University of Cincinnati, and colleagues evaluated resting motor cortex (M1) physiology during a cognitive control task (race car game) requiring motor response selection/inhibition. The analysis included behavioral ratings, motor skill examination, and left M1 physiology in 131 right-handed 8- to 12-year-old children (66 with ADHD: mean age, 10.5 years; 65 with typical development: mean age, 10.6 years).

The researchers found that go responses were significantly slower and more variable in ADHD. Children with ADHD demonstrated less M1 short interval cortical inhibition at rest as well as during go and stop trials. During response inhibition task engagement, rest M1 excitability increased.

Diminished task upmodulation was associated with significantly more severe ADHD behavioral ratings and slower stop signal reaction times.

"The findings of our research suggest that the severity of a child's ADHD symptoms may be associated with diminished ability of the brain to engage appropriately in critical tasks," Gilbert said in a statement.

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More information: Abstract/Full Text (subscription or payment may be required)